

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 10/749,793
Filing Date: December 1, 2003
Title: Dual Diffusion Channel Filter

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Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 14, with the following amended paragraph:

Computer disk drives, and in particular, hard disk drives, are one example of a device that uses filters in this manner. Disk drives are sensitive to moisture, chemical contamination, and particulate contamination, particularly, as the drive heads become smaller and aerial densities increase. Chemical contaminants, such as hydrocarbons and acid gases, can condense onto a disk and degrade the head/disk interface and/or corrode the heads. Particulate contaminants can lead to stiction and can cause read/write errors and head crashes.

Please replace the paragraph beginning at page 6, line 3, with the following amended paragraph:

Figure 1C is a bottom plan view of the filter of Figure ~~figure~~ 1A, showing dashed lines for the location of a diffusion channel.

Please replace the paragraph beginning at page 7, line 16, with the following amended paragraph:

Breather filters act to reduce or eliminate contaminants from air that is exchanged with the exterior of an [a] electronic enclosure. Breather filters are typically placed over a hole or port in the electronic enclosure through which air is exchanged.

Please replace the paragraph beginning at page 9, line 15, with the following amended paragraph:

Figure 1C shows a bottom plan view of the filter of Figure 1A, showing dashed lines for the location of the exterior diffusion channel 116. The exterior diffusion channel 116 is defined

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by the bottom half 120 of the filter, in this embodiment. The exterior diffusion channel 116 has a bottom exterior hole 114 on one end and a bottom interior hole 118 on the other end. Bottom exterior hole 114 is disposed to be in fluid communication with a breather hole in the electronic enclosure. While Figure 1C shows an exterior diffusion channel 116 flow path that is similar in shape to the one shown in Figure 1B for the interior diffusion channel 108, these two diffusion channels may in practice take on different shapes, lengths, and configurations based on the requirements of the particular application. In operation, where the air pressure inside the electronic enclosure is higher than outside the electronic enclosure, air passes through the interior diffusion channel 108 as described above and enters ~~enter~~ the interior cavity of the filter assembly. From there the air will pass through an adsorbent material and then into the bottom interior hole 118 and travel through the exterior diffusion channel 116 and pass through the top exterior hole 114 before passing through the breather hole of the electronic enclosure and to the exterior of the enclosure.

Please replace the paragraph beginning at page 11, line 5, with the following amended paragraph:

Figure 2 shows a side cross-sectional view of the filter of Figure 1A. The housing of filter 100 is formed by a top half 112 and a bottom half 120. The top half 112 and the bottom half 120 are attached together. A variety of means can be used for the attachment including ~~included~~ mechanical compression attachment, adhesive attachment, ultrasonics, etc.

Please replace the paragraph beginning at page 11, line 18, with the following amended paragraph:

Two particulate filter layers 130, 132 are shown in Figure 2. An interior side particulate filter layer 130 is shown on top of top half 112. This particulate filter 130 prevents particulate matter inside the filter assembly from passing into the interior of the electronic enclosure. The particulate filter layer may be constructed of many different materials and is further discussed below. A particulate filter layer may also be positioned in other places in the filter assembly. For

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example, while the particulate filter layer 130 is shown mounted on the outer surface of the filter housing on top half 112, the particulate filter layer 130 can also be positioned on the inner surface of the filter housing. Generally, the particulate filter layer 130 is positioned so that all air moving through the filter assembly into the electronic enclosure must pass through it and is positioned in between an adsorbent material 140 and the interior of the electronic enclosure.

Please replace the paragraph beginning at page 13, line 17, with the following amended paragraph:

The embodiment shown in Figure 3 has two adhesive rings, 144, 145 for keeping the parts of the filter 100 together. Exterior adhesive ring 144 is configured to be in contact with bottom half 120 and a layer of scrim 136. Interior adhesive ring 145 is positioned between top half 112 and adsorbent material 140. The layer of scrim 136 shown in this embodiment is positioned beneath adsorbent material 140 and provides support to the adsorbent. The adhesive rings 144, 145 of this embodiment ~~145 and 144~~ have a ring shape with a center portion that is open.